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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,636	FLATOW, WOLFGANG	
	Examiner	Art Unit	
	James Hwa	2163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant has amended claims 1-18 and 21 in the amendment filed on 10/16/2007. Claims 1-22 are pending in this Office Action.

Response to Arguments

2. Applicant argued that Lee does not teach the added claimed limitation. In response to applicant's argument, new grounds of rejections are discussed in this Office Action.

Applicant argued that "Lee neither discloses nor suggests a database management schema as currently being claimed" and "generate the database management schema (that is actually used to manage the database). The schema-generation schema is clearly not a database management schema". The Examiner respectfully disagrees.

In response to applicant arguments, Lee teaches a relational schema definition is examined for XML data, a relational schema is created out of a document-type definition (DTD), and XML data is loaded into the generated relational schema that adheres to the DTD. In this manner, the data semantics implied by the XML are maintained so that more accurate and efficient management of the data can be performed (column 5, lines 50-56).

Lee also teaches the loader and data synchronizer comprises an XML repository management system which stores a RDBMS having metadata tables and generated relational tables 34 and 20 respectively (column 46, lines 63-67; see also elements 20, 22, 28 and 34 of figure 1).

Lee teaches a system for generating a relational schema from a document type definition, forming a relational database from the relational schema and loading the contents of an extensible document into the relational database according to the relational schema (column 12, lines 12-16).

Lee further teaches the first data storage portion is typically, and preferably, a set of tables in the relational database. The second data definition portion preferably comprises a relational schema as is typically used to model, outline or diagram the interrelationship between tables in a relational database (column 15, lines 43-48).

Applicant argued that the storage tables are related to second and third tables. These features are also not disclosed in the schema.

In response to applicant arguments, O' Brien (new ground) teaches a data model having one or more core entities, each core entity including one or more core attributes and being adapted to store core objects having said core attributes, said DBMS including a set of generic tables adapted to store extended data model data, said tables including a new attribute definition table for associating a new attribute with an existing table and a new data table for storing new attribute values for core objects (column 2, lines 1-8).

For the above reason, examiner believed that rejection of the last Office Action was proper.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-14 and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Lee et al. (US Patent No. 7,031,956 B1, hereinafter "Lee") in view of O' Brien et al. (US Patent No. 6,470,343 B1, hereinafter "O' Brien").

As to claim 1

Lee teaches

"A computer software program recorded on a machine- readable medium and containing machine readable instructions for execution by an electronic processor to provide a database management system in accordance with a database management schema" as a relational schema definition is examined for XML data, a relational schema is created out of a DTD, and XML data is loaded into the generated relational schema that adheres to the DTD. In this manner, the data semantics implied by the

XML are maintained so that more accurate and efficient management of the data can be performed (column 5, lines 50-56).

Lee also teaches the first data storage portion is typically, and preferably, a set of tables in the relational database. The second data definition portion preferably comprises a relational schema as is typically used to model, outline or diagram the interrelationship between tables in a relational database (column 15, lines 43-48).

Lee teaches once validated, the execution processor modifies the relational tables of the relational database according to the specified update semantics (column 51, lines 18-20).

Lee also teaches the loader and data synchronizer comprises an XML repository management system which stores a RDBMS having metadata tables and generated relational tables 34 and 20, respectively (column 46, lines 63-67; see also elements 20, 22, 28 and 34 of figure 1).

Lee further teaches a system for generating a relational schema from a document type definition, forming a relational database from the relational schema and loading the contents of an extensible document into the relational database according to the relational schema (column 12, lines 12-16).

"A first table to store the names of various entity types" see element 30 of figure 1B.

"A second table related to the first table to store the names of entities of the various entity types" see elements 90, 96 of figure 1B.

"A third table related to the first table to store the names of fields in respect of the various entity types" as a relational database schema is generated from the metadata

tables including the step of forming tables for each element type in the metadata item table formed with default fields provided therein (column 12, lines 52-55; see also element 68 of figure 3 and element 92 of figure 1B).

"Identifiers to indicate the nature of the data to be stored in each of said tables" as the step of creating tables in the relational database (identified by reference number 52 in FIG. 2) (column 24, lines 30-32; see also elements 126, 128 of figure 6).

Lee does not explicitly teach the claimed limitation "one or more value storage tables related to the second and third tables to associate stored field values with entities".

O' Brien teaches

A new attribute definition table configured to associate a new attribute with an existing table; and a new data table which stores new attribute values for core objects; thereby extending the core data model to allow the one or more core entities to be modified without affecting the customized extension to the core data model (claim 23).

O' Brien also teaches a user only has to add information to the same four tables to define any new entity and its owner, new attributes for new or core entities, and new data in the new attributes, simple data maintenance or input forms can be designed to manage extensions to the data model (column 4, lines 8-13).

O' Brien further teaches any number of Core attributes can be associated with any number of extended attributes, and so MEM relationship 207 has a many-to-one relationship with both Core Column 205 and MEM Column 203. As explained earlier, it will be seen that this aspect of the embodiment could be adapted to allow new relationships to be defined between new entities (column 4, lines 1-7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, having the teachings of Lee and O' Brien before him/her, to modify Lee one or more value storage tables related to the second and third tables because that would allow client and site-specific extensions necessitating little intervention from the software supplier and should leave the supplier free to update the core and make necessary changes to other client applications as taught by O' Brien (column 1, lines 58-63).

As to claim 2

Lee teaches

"A first hierarchical relationship applied to the first table and a second hierarchical relationship applied to the second table to facilitate definition of hierarchical entities" as store nesting relationships. After defining the PCDATA item and all group items, the hierarchical definitions of elements can be described as nesting relationships between two items. An element definition is a sequence of n sub-elements stored as n nesting relationships with index fields in the DTDM-Nesting table (column 22, lines 41-46; see also figure 1B, dash lines between elements 90, 96 and 94,100).

As to claim 3

Lee teaches

"The schema includes tables to store relationships between the entities" as altering the tables in the schema of the relational database to add links between tables

in the schema corresponding to a relationship identified in each row of the metadata nesting table (column 7, lines 26-29).

As to claim 4

Lee teaches

"The first table includes a column to store pointers corresponding to entity types the pointers indicating locations from which default values may be obtained during creation of new instances of the entity types" as the method can comprise the step of calling both the create element primitive and the move element primitive to create a new element in the document object and to attach the newly-created element within the document object at a desired location (column 10, lines 5-9).

Lee further teaches the method can further comprise the step of determining whether a default value is required during the creation of a new element in accordance with the at least one proposed data update during the step of validating the at least one proposed data update (column 7, lines 55-59).

As to claim 5

Lee teaches

"The third table includes a column to store data indicating that a newly created entity's name is to be generated from data stored in columns of the one or more value storage tables" as document storing is accomplished in two ways. First, the XML document is stored as a whole for indexing, referred to as way of storing the XML

document as an XML column. Second, pieces of XML data are stored into table(s), referred to as XML collections (column 5, lines 14-18).

Lee further teaches generating the schema for the relational database from the metadata, wherein at least one table is thereby defined in the relational database corresponding to at least one content particle of the document-type definition via the metadata, and at least one column is defined in each of the at least one table corresponding to another of at least one content particle of the document-type definition (column 6, lines 46-53).

As to claim 6

Lee teaches

"The one or more value storage tables comprise a number of value tables each including a column of values of a particular type" as generating an attribute metadata table corresponding to attribute type content particles in the document-type definition; creating a default attribute value in the attribute metadata table corresponding to any default items in the item metadata table (column 6, lines 63-67).

Lee also teaches the path can comprise at least one node indicator comprising a label value and a position value corresponding to the document object. The position value can correspond to a lateral sibling location in the document object. The label value can be selected based upon a node type of a predetermined node (column 10, lines 17-23).

Lee further teaches the method can further comprise the step of determining whether an enumerated value is required by the at least one proposed data update and determining whether a proposed value therefore is contained in a specified enumeration during the step of validating the at least one proposed data update (column 10, lines 62-67).

As to claim 7

Lee teaches

"One or more of the value tables are each related to one or more other tables of the schema" as every node preferably has a type and possibly one or more attributes. Every attribute preferably has a name and its corresponding value. For internal nodes, the element type is written above the node followed by any attributes and their values. All leaf nodes have type PCDATA, and have their values in the value attribute below the node (column 33, lines 20-28).

Lee also teaches decomposes multiple tuples for a multi-value attribute and stores those values into column in table. For example, if a multi-value attribute has value v1 v2, then it will create two tuples with value v1 and v2 respectively (column 35, lines 15-19).

Lee further teaches when an attribute is encountered, two possible cases result, first, this attribute can be mapped into a column and then the column of the tuple in the specific table is updated. Second, this attribute can be mapped into a table, and then multiple tuples in the specific table can be created for each value in this attribute (column 35, lines 26-31).

As to claim 8

Lee teaches

"The one or more of the value tables are each related to the second table" as the optimizer, to create the link pattern and pattern mapping tables. It should be understood that the optimizer is entirely optional and can be omitted without departing from the scope of this invention. The tables comprise an IM-Item table, which contains mapping information relating to the DTDM-Item table, an IM-Attribute table that contains mapping information relating to the DTDM-Attribute table (column 16, lines 34-42; see also figure 1A).

As to claim 9

Lee teaches

"The one or more of the value tables are arranged to store pointers to data stored external to data structures created by the computer software product." as the method comprising the steps of receiving at least one proposed data update representative of the supplemental data from a source external to the relational database (column 9, lines 39-41).

Lee further teaches the path can comprise at least one node indicator comprising a label value and a position value corresponding to the document object. The position value can correspond to a lateral sibling location in the document object (column 10, lines 17-22; see also element 12 of figure 16).

As to claim 10

Lee teaches

"The schema includes a data type table relating names of the value storage tables to corresponding names of the column of values of a particular type" as the relational database having a set of tables defined by a relational schema, the supplemental data comprising formatted data having a document type definition representative of the relational schema and represented in a document object (column 10, lines 28-32).

Lee further teaches attribute-list declarations define attributes of an element type. The declaration includes attribute names, default values and types (column 2, lines 4-6).

As to claim 11

Lee teaches

"The data type table is related to the third table" as a DTDM-Attribute table generally made up of Attribute of elements and groups contained in the DT (column 16, lines 28-29; see also elements 90 and 92 in figure 1B).

As to claim 12

Lee teaches

"The data type table is related to an intermediate value type table and wherein the value type table points to the third table" as processing moves to a query of the DTDM-Item table is performed to return all of the item types stored in the DTDM-Item

table. A proposed SQL statement to accomplish this task is shown in note 122 associated with step 120 in FIG. 6 (column 24, lines 30-33; see also element 122 of figure 6 and elements 90, 92 of figure 1B).

As to claim 13

Lee teaches

"The third table includes columns to define multiple field functionality" as processing then moves to step in which all of the nesting relationships from this group to its children are created by function fill_DTDM-Nesting_Item. Processing then moves to decision block in which it is determined whether there are additional element types in the DTD to be processed for the loop initiated (column 20, lines 14-22; see also element 424 of figure 5 and element 444 of figure 5A).

As to claim 14

Lee teaches

"The third table includes a column to indicate if historical data values are to be stored in respect of a corresponding field type and wherein the value storage tables each include a column to store current values of said field type and to store data indicating when the current values were written" as processing moves to step 120 in which a query of the DTDM-Item table 90 is performed to return all of the item types stored in the DTDM-Item 90 table. A proposed SQL statement to accomplish this task is shown in note 122 associated with step 120 in FIG. 6. Processing then moves to step

124, which initiates a loop for every item returned in the record set selected in step 120. Processing within the loop then moves to step 126 wherein a table 20 is created in the relational database 14 with some key-type default fields, wherein the table name created in the database 14 corresponds to the Name field in the DTDM-Item table 90 as returned in the record set in step 120 (column 24, lines 33-44; see also figure 6).

As to claim 16

Lee teaches

"The schema includes a format table having columns to store data storage formats" as a system for synchronizing and updating a relational database containing existing data with supplemental data, the relational database having a set of tables defined by a relational schema, the supplemental data comprising formatted data having a document type definition representative of the relational schema and represented in a document object (column 10, lines 26-32).

Lee further teaches it is an important feature that the DTD is loaded by the system and used in metadata format to generate the relational schema of the second data definition portion (column 15, lines 49-55).

As to claim 17

Lee teaches

"The schema includes one or more tables to store values indicating groupings of sets of fields" as an element type definition, elements that are associated within

parentheses participate in a grouping relationship, and are defined as a group (column 2, lines 63-65).

Lee further teaches the loading step can further comprise the steps of: initializing a link table; determining whether each item in the metadata nesting table contains a group type; initializing a pattern-mapping table; directly mapping a link into the link table for each item in the metadata nesting table that does not contain a group type; creating an additional link table containing a mapping of a link pattern for each group type identified in the metadata item table (column 7, lines 37-45).

As to claims 18-20

The limitations therein have substantially the same scope as claims 1-3. In addition, Lee teaches a system and method for receiving XML-based data and updating a set of relational database tables only with data that has changed and verifying that the updates have performed successfully (column 1, lines 22-26).

Lee also teaches document object model (DOM) operations are object-oriented operations, in the sense that every node is identified by its Object Identifier (column 55, lines 27-28).

Lee further teaches in the loader and data synchronizer, elements, when mapped to their relational representation, is identified by the pair node-name and iid (column 57, lines 35-37).

These claims are rejected for at least the same reasons as claims 1-3.

As to claim 21

Lee teaches

"The step of storing data defining relationships includes: storing data identifying various relationship types in a fifth table; and storing data identifying relations in a sixth table" as in order to accomplish these functions, the system comprises an extractor, an optimizer, a generator and a loader all of which are interconnected to a storage unit. As contemplated by this, the storage unit comprises at least a metadata table storage portion and a pattern mapping table storage portion (column 15, lines 56-61; see also elements 36, three of them in figure 1B).

As to claim 22

Lee teaches

"A computational device operated according to the method of claim 18" as an execution device is operably connected to the translator for propagating the received at least one proposed data update into the relational database in a manner which ensures compliance with both the relational database relational schema and the document type definition (column 10, lines 35-40).

4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent No. 7,031,956 B1) and O' Brien et al. (US Patent No. 6,470,343 B1) as applied to claim 1 above, and further in view of Iborra et al. (US Patent Application No. 2003/0167455 A1, hereinafter "Iborra").

As to claim 15

Lee does not explicitly teach the claimed limitation "the third table includes a column to store values indicating whether or not values of a newly created instance of an entity are to be inherited from another instance of an entity".

Iborra teaches

The model also maintains information on relationships between classes, which can be of two types: aggregation and inheritance. Each inheritance relationship stores the name of the parent class, the name of the child class and whether the specialization is temporary or permanent. Finally, if the specialization is permanent it stores a well-formed formula on constant attributes as specialization condition (page 8, paragraph 0095).

Iborra further teaches the system logic translator is a translator that writes the code that actually carries out the processing of all the services defined in the objects defined by the Conceptual Model to alter the values of attributes of various objects, call services of other objects (page 3, paragraph 0035).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, having the teachings of Lee, O' Brien and Iborra before him/her, to modify Lee created instance of an entity are to be inherited from another instance of an entity because that would allow a user to input the requirements, a validator for validating the input requirements as taught by Iborra (page 7, paragraph 0083).

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Hwa whose telephone number is 571-270-1285. The examiner can normally be reached on 8:00 – 5:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.
Status information for unpublished applications is available through Private PAIR only, for more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JH
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